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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,578	07/25/2003	Kunihiko Iizuka	1248-0663P	9554

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EXAMINER
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TSE, YOUNG TOI

ART UNIT	PAPER NUMBER
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2611

NOTIFICATION DATE	DELIVERY MODE
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05/18/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary**

Application No.

10/626,578

Applicant(s)

IIZUKA, KUNIIHIKO

Examiner

YOUNG T. TSE

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-19 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 20 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see pages 10 and 11, filed February 23, 2007, with respect to the rejection under 35 U.S.C. § 102(e) have been fully considered and are persuasive by submitting a certified translation of claims priority of Japanese Application 2002-218779, filed July 26, 2002. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ichimura et al..

### ***Drawings***

2. The drawings were received on February 23, 2007. These drawings are acceptable.

### ***Claim Objections***

Claims 1-8 are objected to because of the following informalities: In claim 1, line 6, "the integrator" should be "the first integrator". The dependent claims 2-8 are directly or indirectly depended upon the independent claim 1. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ichimura et al., U. S. Patent No. 5,701,124 (hereinafter "Ichimura").

Ichimura discloses a delta sigma modulator in Fig. 3 or Fig. 7 for generating an output signal from an input signal.

Regarding claims 1, 9 and 20, the delta sigma modulator shown in 7 comprises a multiplier (3) for multiplying an input signal (21) by a predetermined coefficient signal generated by a coefficient generator (4); a first integrator (23) for integrating an output of the multiplier (3); a comparator or quantizer (24) for quantizing an output of the first integrator (23) (col. 6, lines 60-64); and a negative feedback path comprising a delay element (25) and a 1 bit digital-to-analog converter D/A (26) for negatively feeding an output of the comparator (24) back to the first integrator (23).

Regarding claim 2, the delta sigma modulator further comprises an adder (22) which adds the output of the multiplier (3) and supplies an output to the first integrator (23).

Regarding claim 3, Fig. 8 shows a block diagram of a digital signal processing circuit (1), the output of the digital signal processing circuit is input to an analog filter (33) or a digital filter (35). The detailed embodiment of the digital signal processing

circuit (1) is shown in Fig. 3 or Fig. 7. Wherein either the analog filter (33) or the digital filter (35) is a well known integrator, for example, including an RC circuit integrated in a serial or parallel manner for integrating the output of the comparator (24).

Regarding claim 4, the delta sigma modulator further comprises the D/A converter (26) in the feedback path.

Regarding claims 5-6, although Ichimura does not explicitly teach or suggest that the input signal is impulse train or PPM signal. It is well known to a person skill in the art that an input signal used in the input of a delta sigma modulator can be impulse train or PPM signal. Further, the claimed subject matter of claims 5-8 also described at pages 1-6 in the background of the invention of the instant application that the impulse train and the PPM signal are well known signal used in different types of communications systems.

#### ***Allowable Subject Matter***

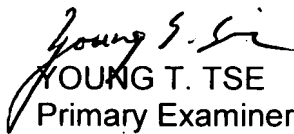
5. Claims 11-19 are allowed.
6. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
YOUNG T. TSE  
Primary Examiner  
Art Unit 2611